

Appl. No. 10/582,797
Amdt. dated February 9, 2009
Reply to Office action of October 9, 2008

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-19. (Cancelled)

20. (Currently amended) An automatic parking brake, including
a brake piston,
an auxiliary piston,
a hydraulic chamber disposed between the brake piston and the auxiliary piston,
a spring element, for prestressing the auxiliary piston,
a threaded connection disposed in a through bore of the auxiliary piston,
a spindle device connected to the auxiliary piston via a ~~the~~ threaded connection and
able to be applied directly against the brake piston, and
a drive for the spindle device,
wherein in a locked state of the parking brake, the brake piston is mechanically
locked via the spindle device and the spring-loaded auxiliary piston, and
in a released state of the parking brake, the auxiliary piston is blocked by means of
the spring element and/or by means of the spindle device.

21. **(Previously presented)** The parking brake in accordance with claim 20, wherein the drive comprises an electric motor.

22. **(Previously presented)** The parking brake in accordance with claim 21, further comprising a diagnosis device for determining a locked and/or released state of the parking brake, the diagnosis device being operable to determine the state of the parking brake on the basis of a motor current consumed by the electric motor.

23. **(Previously presented)** The parking brake in accordance with claim 21, further comprising a detection device, for ascertaining a blocking current of the electric motor before each locking operation and/or before each release operation.

24. **(Previously presented)** The parking brake in accordance with claim 22, further comprising a detection device, for ascertaining a blocking current of the electric motor before each locking operation and/or before each release operation.

25. **(Previously presented)** The parking brake in accordance with claim 20, wherein wear of a brake lining can be compensated for by a lengthened stroke of the spindle device.

26. **(Previously presented)** The parking brake in accordance with claim 20, wherein the spindle device is disposed in an air-filled chamber.

27. **(Previously presented)** The parking brake in accordance with claim 20, further comprising a sealing element on the brake piston for sealing off the hydraulic chamber, the sealing element also acting as a restoring element for the brake piston.
28. **(Previously presented)** The parking brake in accordance with claim 20, further comprising a device for preventing seizing of the spindle device.
29. **(Previously presented)** The parking brake in accordance with claim 28, wherein the device for preventing seizing of the spindle device comprises both an element that protrudes from a head of the spindle device and an elastic element.
30. **(Previously presented)** The parking brake in accordance with claim 29, wherein the elastic element is a spring or an elastomer.
31. **(Currently amended)** An automatic parking brake, including a brake piston, an auxiliary piston, a hydraulic chamber disposed between the brake piston and the auxiliary piston, a spring element, for prestressing the auxiliary piston, a spindle device connected to the auxiliary piston via a threaded connection, a drive for the spindle device, wherein in a locked state of the parking brake, the brake piston is mechanically locked via the spindle device and the spring-loaded auxiliary piston, and in a released state of the parking brake, the auxiliary piston is blocked by means of the spring

element and/or by means of the spindle device, and a device for preventing seizing of the spindle device which comprises both an element that protrudes from a head of the spindle device and an elastic element The parking brake in accordance with claim 29, wherein the protruding element is a ball.

32. (Currently amended) An automatic parking brake, including a brake piston, an auxiliary piston, a hydraulic chamber disposed between the brake piston and the auxiliary piston, a spring element, for prestressing the auxiliary piston, a spindle device connected to the auxiliary piston via a threaded connection, a drive for the spindle device, wherein in a locked state of the parking brake, the brake piston is mechanically locked via the spindle device and the spring-loaded auxiliary piston, and in a released state of the parking brake, the auxiliary piston is blocked by means of the spring element and/or by means of the spindle device, and a device for preventing seizing of the spindle device which comprises both an element that protrudes from a head of the spindle device and an elastic element which are embodied by The parking brake in accordance with claim 29, wherein the device for preventing seizing of the spindle device comprises a stop including a first element, which is disposed on the head of the spindle device, and a second element, which is disposed on a housing part, and wherein in a stop position, the first element is in contact with a stop face perpendicular to a direction of rotation of the spindle device.

33. **(Previously presented)** The parking brake in accordance with claim 32, wherein a height of the second element on the head of the spindle device is less than one thread pitch of the spindle device.

34. **(Previously presented)** A method for actuating an automatic parking brake, having a brake piston and a spring-loaded auxiliary piston that is connected to a spindle device via a threaded connection the method comprising the following steps:

actuating the spindle device, until the spindle device contacts the brake piston;

building up a hydraulic pressure in a hydraulic chamber disposed between the brake piston and the auxiliary piston, when the spindle device contacts the brake piston, in order by means of the brake piston to shift the parking brake into a locked state, and in order to move the auxiliary piston, connected to the spindle device, in an opposite direction, whereupon the spindle device is spaced apart from the brake piston;

actuating the spindle device again, until the spindle device again contacts the brake piston and the position of the brake piston is mechanically fixed via the spindle device and the auxiliary piston; and

reducing the hydraulic pressure in the hydraulic chamber.

35. **(Previously presented)** The method in accordance with claim 34, wherein the auxiliary piston is acted upon by the spring force of the spring element, in order to keep the brake piston in its locked position.

36. **(Currently amended)** The method in accordance with claim 33 34, wherein that the spindle device is driven by means of an electric motor, and a diagnosis of the state of the parking brake is made on the basis of a motor current consumed by the electric motor, by means of a diagnosis device.

37. **(Previously presented)** The method in accordance with claim 34, wherein, before a locking and/or release of the parking brake, the spindle device is moved toward a component in a direction counter to the actuation direction of the spindle device in order to determine a magnitude of a blocking current of the electric motor.

38. **(Previously presented)** The method in accordance with claim 34, wherein, for releasing the locked parking brake, a hydraulic pressure in the hydraulic chamber is built up; the spindle device is actuated in order to move it away from the brake piston, and the spindle device does not rotate until a pressure in the hydraulic chamber is equal to or greater than a spring force of the spring element, and the spindle device is moved until it comes into contact with a housing part and after the spindle device contacts the housing part, the hydraulic pressure in the hydraulic chamber is reduced, as a result of which the brake piston and the auxiliary piston move in the direction toward one another, so that the spindle device connected to the auxiliary piston via the threaded connection comes out of contact with the housing part.

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39. **(Previously presented)** The method in accordance with claim 34, wherein, after the reduction of the hydraulic pressure, the spindle device is driven again, until it once again comes into contact with the housing part, in order to assure a mechanical fixation of the auxiliary piston in the released state of the parking brake.